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ABSTRACT

A study investigated the effects of goal setting on children's self-efficacy and skillful performance during reading comprehension instruction. Subjects, 17 fourth graders and 16 fifth graders from one elementary school, had regularly received remedial reading comprehension instruction. Subjects were administered a pretest consisting of a self-efficacy test assessing children's perceived capabilities for correctly answering different types of questions that tapped comprehension of main ideas, and a reading comprehension skill test. Following the pretest, subjects were randomly assigned within sex and grade level to one of three experimental conditions--process goal, product goal, and instructional (general) goal. All students received 35-minute training sessions over 15 consecutive school days. Subjects' perceptions of their goals during the instructional sessions were assessed on the day following the last session, and subjects were also administered a posttest identical to the pretest except that a parallel form of the skill test was used. Results supported the theory that providing students with a specific learning goal can have important effects on achievement behaviors. Compared with students who received a general goal of working productively, those given either a process goal of learning to use a comprehension strategy or a product goal of answering questions demonstrated significantly higher self-efficacy on completion of the instructional program. Findings also showed that pursuing a learning process goal led to the highest comprehension skill. (One table of data is included and 35 references are appended.) (MM)

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Learning Goals During Reading Comprehension Instruction

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Abstract

This experiment investigated the effects of goal setting on children's self-efficacy and reading comprehension. Remedial readers participated in a comprehension strategy instructional program on finding main ideas. Some subjects received a product goal of answering questions, others were given a process goal of learning how to use the steps in the strategy, and subjects in an instructional control condition were told to work productively. Compared with control subjects, process and product goal children judged self-efficacy significantly higher, and process goal children demonstrated higher comprehension skill. Process goal children placed significantly greater emphasis on learning to use the steps compared with children in the other two conditions, and judged becoming a better reader more important than did product goal subjects. These results suggest the usefulness of goal setting with remedial readers and of employing goals relating to the learning process.

Learning Goals During Reading Comprehension Instruction

Goal setting represents an important source of task motivation (Bandura, 1986; Locke, Shaw, Saari, & Latham, 1981). The hypothesized mechanism involves internal comparisons of standards against present performance level. When students make personal satisfaction contingent on attaining a desired performance level, they are likely to sustain their efforts until they achieve their goals.

Of central importance are goal properties that, when internalized as conscious intentions, serve as incentives for action (Bandura, 1986; Latham & Yukl, 1975; Locke et al., 1981). Goals that incorporate specific performance standards lead to higher performance than do general goals (e.g., "Do your best) or no goals. Proximal goals, which are close at hand, result in greater motivation than do temporally distant goals. Difficulty level also is important. Assuming that students possess the requisite ability to attain the goal, challenging but attainable goals enhance motivation better than easy goals or those that students view as overly difficult. Research with children demonstrates that these various goal properties enhance academic performance (Bandura & Schunk, 1981; Fuchs, Fuchs, & Deno, 1985; Gaa, 1973; Rosswork, 1977; Schunk, 1983a, 1983b, 1985; Tollefson, Tracy, Johnsen, & Chatman, 1986; Tollefson, Tracy, Johnsen, Farmer, & Buenning, 1984).

According to Bandura (1982), the effects of goal properties on behavior depend in part on perceptions of self-efficacy, or personal beliefs about one's capabilities to organize and implement actions necessary to attain designated levels of performance. Self-efficacy is hypothesized to affect one's choice of activities, effort expenditure, persistence, and achievement. Individuals acquire information about their self-efficacy through their actual

performances, vicarious (observational) experiences, forms of persuasion, and physiological indexes (e.g., sweating, heart rate).

The purpose of the present study was to investigate the effects of goal setting on children's self-efficacy and skillful performance during reading comprehension instruction. When children are given a specific learning goal, they may experience an initial sense of self-efficacy for learning, which is substantiated later as children work on the task and note their goal progress (Schunk, in press). High self-efficacy helps to sustain motivation and to foster skill development (Locke, Motowidlo, & Bobko, 1986). In the absence of learning goals, students may be less sure of their capabilities because they lack a standard against which to gauge progress. Such self-doubts can impede skill development (Licht & Kistner, 1986).

In educational settings, a distinction is often drawn between goals reflecting products of learning, which concern what students should know or be able to accomplish as a result of learning, and goals reflecting the processes of learning, which focus on techniques and strategies that students can use to promote learning (Weinstein & Mayer, 1986). Goal-setting research in achievement settings has typically employed product goals representing quantity of work to be completed. Educators are increasingly emphasizing that students become proficient in the use of learning strategies, or systematic plans that improve the encoding of information and task performance (Paris, Lipson, & Wixson, 1983). Teaching students to use learning strategies can improve their performance on the task at hand and can generalize beyond the learning context (Pintrich, Cross, Kozma, & McKeachie, 1986).

In the present study, remedial readers received comprehension strategy instruction on finding main ideas during several sessions. Some subjects

received a specific product goal of answering questions, others were given a specific process goal of learning how to use the steps in the strategy, and subjects in a third condition were told to work productively (general goal). We expected that subjects in the two specific goal conditions would develop higher self-efficacy and skills than would children in the general goal condition.

We also hypothesized that the process goal would raise self-efficacy and skills more than the product goal. Children who believe that they know how to apply a strategy to improve their performances may experience a greater sense of control over learning outcomes, which can raise self-efficacy (Schunk, in press). By emphasizing the process goal, we felt that these children might be more likely to view the strategy as an important means of enhancing their performances and thereby continue to use it when no longer required to do so (i.e., on the posttest). In contrast, product-goal subjects were expected to view the strategy as less important to their success and to believe that they had less control over their learning outcomes, which should not enhance self-efficacy. Subjects who believe that a strategy does not contribute much to their successes are not likely to systematically employ the strategy outside of the training context (Borkowski & Cavanaugh, 1979; Fabricius & Hagen, 1984; Paris, Newman, & McVey, 1982; Ringel & Springer, 1980).

Method

Subjects

The final sample comprised 33 students (17 fourth graders, 16 fifth graders) drawn from one elementary school. The 15 boys and 18 girls ranged in age from 9 years 8 months to 13 years 3 months (M = 11.2 years). Although different socioeconomic backgrounds were represented, children predominantly

were lower-middle class. Ethnic composition of the sample was 55% Hispanic, 18% Black, 15% Asian, 12% White. Teachers initially nominated 36 children for participation; two students were excluded because they missed some of the training sessions, and one student was excluded to equalize the cell sizes.

Subjects regularly received remedial reading comprehension instruction. Students had been placed in remedial classes by the school district because they scored at or below the 20th percentile on the reading subtest of the SRA Achievement Series (Naslund, Thorpe, & Lefever, 1978). Most students in the sample (65%) were in their first year of being enrolled in the remedial program, 28% were in their second year, and 7% were in their third year. Twenty-one students (64%) received some instruction in English as a second language classes.

Pretest

The pretest was administered to children individually by a female adult tester from outside the school. Testing was conducted according to a standardized set of instructions. The self-efficacy test assessed children's perceived capabilities for correctly answering different types of questions that tapped comprehension of main ideas. For this assessment, 20 scales were portrayed on four sheets of paper. Each scale ranged in 10-unit intervals from not sure--10, through intermediate values (50-60), to really sure--100.

The reading materials included eight passages drawn from books A, B, and C, of Scoring high in reading (Cohen & Foreman, 1978). Passages ranged from 4 to 25 sentences, and each passage was followed by one to four questions (e.g., "What is the first paragraph mostly about?", "What is the most important idea in this story?", "What is the narrator's main feeling?", "What is a good title for this passage?") for a total of 20 questions. According to Cohen and

Foreman, four passages (nine questions) were appropriate for grade two students of average reading ability (book A), two passages (six questions) for grade three students (book B), and two passages (five questions) for grade four students (book C). Passages and questions corresponded in reading level to those on the ensuing skill test although they were not identical.

The following is a sample passage and question from Book B:[1]

The gorilla's life is not always quiet. Sometimes the father gorilla does a very strange thing. In a way it is a kind of dance. First he makes a soft hooting noise. Then he picks a leaf and holds it in his lips. He stands up high on his back legs. He hoots faster. He throws leaves in the air. He hits his great chest so hard the noise can be heard far away. He kicks one leg in the air. He runs sideways. He rips leaves and branches off trees. Then, to end it all, he hits the ground with his mighty hand.

What is this story mainly about?

A. How the father gorilla rips up trees.

B. A strange dance of the father gorilla.

C. The life of the father gorilla.

D. How a father gorilla makes a hooting noise.

The reliability of the efficacy measure was assessed in conjunction with previous similar research (Schunk & Rice, in press). The test-retest reliability coefficient was .82.

Children initially received practice with the self-efficacy scale by judging their certainty of successfully jumping progressively longer distances. Following this practice, children read each of the eight passages. After children read each passage, the tester read its questions one at a time.

For each question, students privately judged their certainty of answering correctly questions of that type; children judged their capability of answering different types of questions rather than whether they could answer particular questions. Students were not allowed to consult passages and questions did not appear on their test pages to preclude them from actually answering the questions. Children were advised to be honest and mark the efficacy value that matched how they really felt. The 20 efficacy judgments were summed and averaged.

The comprehension skill test, which was administered immediately following the efficacy assessment, comprised 8 passages with 20 questions. Passages and questions were drawn from Scoring high in reading (Cohen & Foreman, 1978) and ranged in difficulty as described above. Two different forms of the skill test were developed. These parallel forms were used on the pretest and posttest to eliminate potential effects due to passage familiarity. Reliability was assessed during a previous study (Schunk & Rice, in press); children's scores on these parallel forms correlated highly (r = .87).

The tester presented children with each passage, along with its one or more multiple choice questions, one at a time. After children read each passage, they answered its questions without assistance or performance feedback. The measure of comprehension skill was the number of questions answered correctly.

Instructional Program

Following the pretest, children were assigned randomly within sex and grade level to one of three experimental conditions (n = 11 per condition): process goal, product goal, instructional control (general goal). All

students received 35-min training sessions over 15 consecutive school days. Children assigned to the same experimental condition met in groups of 5-6 with a female adult trainer drawn from outside the school. Prior to the start of the study, the trainer received instruction on the procedures from the authors and practiced with a small group of students who did not participate in the actual study.

The instructional material consisted of a training packet that included several reading passages, each of which was followed by one or more multiple-choice questions assessing comprehension of main ideas. The passages in the packet were drawn from different sources and were similar to those typically used by children's remedial teachers. The reading passages were ordered from least-to-most difficult; 40% of the material was appropriate for a second grade class of average reading ability, 40% for a third grade class, and 20% for a fourth grade class. Children worked on this packet during each of the training sessions.

In the training room was a poster board, on which was printed a five-step reading comprehension strategy. This strategy, which was developed in previous research (Schunk & Rice, 1986), was as follows:

> What do I have to do? (1) Read the questions. (2) Read the passage to find out what it is mostly about. (3) Think about what the details have in common. (4) Think about what would make a good title. (5) Reread the story if I don't know the answer to a question.

At the start of the first training session, the trainer distributed the instructional packet and verbalized the general instructions and the appropriate treatment instructions (described below). The trainer then pointed to the poster board and modeled the strategy and its application by

verbalizing, "What do I have to do? Read the questions." The trainer read aloud the multiple-choice questions for the first comprehension passage while children followed along, after which she pointed to and verbalized steps (2) and (3). The trainer explained that details referred to bits of information and gave some examples, and said that while she was reading the passage she would be thinking about what the details had in common. She then read the passage aloud. The trainer pointed to and verbalized step (4), and explained that trying to think of a good title helps to remember important ideas in a story. She stated some of the details in the story, explained what they had in common, and made up a title for the story. The trainer then read aloud the first question and its multiple choice answers, selected the correct answer, and explained her selection by referring to the passage. She answered the remaining questions in the same fashion.

Following this modeled demonstration, the trainer instructed children to repeat aloud each step after she verbalized it. She then said, "What do I have to do? Read the questions." After children verbalized these statements, she selected one student to read the questions aloud. When this child finished, the trainer instructed children to repeat after her steps (2) and (3). The trainer then called on a different child to read the passage aloud, after which she asked children to repeat step (4) after her. A third student was selected to think of a title for the story and explain his or her answer. The trainer then called on individual children to read aloud each of the questions with its answers and to answer that question. If a child answered a question incorrectly, the student repeated step (5) and reread enough of the passage to answer the question correctly. When students stumbled on a word while reading the trainer prompted with contextual and phonetic cues.

The training format for the remainder of the first session and the rest of the training program was identical except that the trainer did not model strategies and children did not verbalize each step prior to applying it. Instead, she referred to steps at the appropriate places and occasionally asked children to verbalize them. The training procedure was scripted to insure standardized implementation. Occasional observations by the authors confirmed that it was properly implemented. During the experiment, children received no additional comprehension instruction.

Experimental Conditions

At the start of each training session, all children were told the following by the trainer:

> Today we're going to be working together on reading. We'll read some passages and answer some questions. We're going to use these steps to answer questions about what we've read. I've given you some papers that we'll be working on.

Immediately following these instructions, the trainer provided children with the appropriate goal information. To children assigned to the process goal condition, the trainer said, "While you're working, it helps to keep in mind what you're trying to do. You'll be trying to learn how to use the steps to answer questions about what you've read." In this condition and the other two, the trainer asked children if that goal sounded reasonable. We felt that this step would help to promote a sense of goal commitment among children. There is evidence that goals do not affect performance if people do not accept them (Locke et al., 1981; Mento, Cartledge, & Locke, 1980). No child in any condition expressed displeasure with the goal.

To children assigned to the product goal condition, the trainer said, "While you're working, it helps to keep in mind what you're trying to do. You'll be trying to answer questions about what you've read." The goal instructions given to instructional control (general goal) subjects were, "While you're working, try to do your best." The latter condition controlled for the effects of comprehension instruction and strategy training.

Goal Perceptions

Children's perceptions of their goals during the instructional sessions were assessed on the day following the last session. For any given child, the tester was unaware of the child's experimental assignment and of how the child had performed during the training program. Children were given a sheet of paper that portrayed four scales. Each scale ranged in 10-unit intervals from not at all--0, through intermediate values (some--40, pretty much--60), to a whole lot--100. The scales were labeled, answer the questions, finish working the papers, learn to use the steps, and become a better reader. (These measures will be referred to as questions, papers, steps, and reader, respectively.) Label order was counterbalanced across subjects.

The tester asked children to think about what things they were trying to do during the instructional sessions. The tester explained that children were to mark on the scales how much they were trying to do each of those things. The tester explained each of the four scales and provided some examples of how hypothetical children might answer. After being told that there were no right or wrong answers, children marked their papers privately.

Posttest

Children then were administered the posttest. The self-efficacy and skill instruments and procedures were identical to those of the pretest except

that the parallel form of the skill test was used. Tests and training materials were scored by an adult who had not participated in the data collection and was unaware of children's experimental assignments. The reading comprehension skill tests were scored using the answers provided in the source material (Cohen & Foreman, 1978).

Results

Means and standard deviations of all measures are presented by experimental condition in Table 1. Preliminary analyses of variance (ANOVAs) yielded no significant between-conditions differences on pretest measures. There also were no significant differences on any measure due to grade level or sex of child. The three experimental conditions did not differ in the number of passages completed during the training program.

Insert Table 1 about here

Pretest-to-posttest changes in self-efficacy and skill were evaluated using the t test for correlated scores (Winer, 1971). Subjects in the process and product goal conditions showed significant gains in comprehension skill ($ps < .01$) and self-efficacy (process goal, $p < .01$; product goal, $p < .05$). Children in the instructional control condition demonstrated no significant changes in either measure.

Posttest self-efficacy and skill were analyzed with a multivariate analysis of covariance (MANCOVA); the three experimental conditions constituted the treatment factor and the two pretest measures served as covariates. This analysis was significant, Wilks's lambda = .603, $F(4, 54) = 3.88$, $p < .01$. Analysis of covariance (ANCOVA) applied to each posttest

measure yielded significant effects: self-efficacy, $F(2, 29) = 4.02$, $p < .05$; skill, $F(2, 29) = 5.26$, $p < .05$. Posttest means were evaluated using Dunn's multiple comparison procedure (Kirk, 1982). These analyses showed that students in the process and product goal conditions judged self-efficacy significantly higher than did students in the control condition ($ps < .05$). Process goal subjects demonstrated significantly ($p < .01$) higher comprehension skill compared with control subjects.

The four goal perception measures were analyzed with a multivariate analysis of variance (MANOVA), which yielded a significant treatment effect, Wilks's lambda = .441, $F(8, 54) = 3.41$, $p < .01$. Separate ANOVAs on each measure revealed significant effects on steps, $F(2, 30) = 8.34$, $p < .01$, and reader, $F(2, 30) = 4.28$, $p < .05$. Dunn's procedure showed that process goal subjects placed significantly greater emphasis on learning the steps compared with product goal ($p < .05$) and control ($p < .01$) subjects, and judged becoming a better reader significantly more important than did product goal children ($p < .05$).

Correlational analyses were conducted to examine the relationship of posttest self-efficacy, posttest skill, and the four goal perception measures. Pearson product-moment correlations were computed separately within each experimental condition. The between-conditions differences in these correlations were nonsignificant; therefore, correlations were averaged across the three conditions using an r to z transformation (Edwards, 1984). Significant correlations were obtained between posttest self-efficacy and skill ($r = .31$, $p < .05$), and between self-efficacy and each of the four goal perception measures (range of $rs = .32$-$.39$, all $ps < .05$). Positive and significant correlations were obtained between steps and reader, $r = .30$, $p <$

.05; steps and questions, r = .41, p < .01; and reader and papers, r = .48, p < .01.

Discussion

The results of this study support the idea that providing students with a specific learning goal can have important effects on achievement behaviors. Compared with students who received a general goal of working productively, those given either a process goal of learning to use a comprehension strategy or a product goal of answering questions demonstrated significantly higher self-efficacy on completion of the instructional program. These findings cannot be due to factors associated with the reading instruction, because each experimental condition received the same amount and type of instruction and practice in applying the strategy, and conditions did not differ in the number of reading passages completed.

Providing subjects with a specific goal that they believe is attainable raises their initial sense of self-efficacy for learning, which subsequently is substantiated as children work at the task and experience success. The perception of progress toward one's goal is an important means of enhancing self-efficacy (Bandura, 1986). Control subjects, who received only a general goal, may have been less certain of their reading progress, which will not raise self-efficacy (Schunk, in press).

Pursuing a learning process goal led to the highest comprehension skill. It is possible that the process goal created in children a greater sense of control over learning outcomes than did the product goal. The belief that one knows and can apply a strategy that produces success may have led children to apply the strategy during the posttest when they were not required to do so. Product goal subjects, who did not place as much emphasis on learning to use

the strategic steps, may not have applied the strategy as diligently on the posttest. This explanation is suggestive because children's strategy use on the posttest was not formally assessed. Future research needs to explore this possibility.

The two specific goal conditions did not differ significantly in self-efficacy or skillful performance. Both goals were short-term, specific, and difficult but attainable. Each of these goal properties is associated with higher self-efficacy and task performance (Bandura, 1986; Locke et al., 1981). It is possible that 15 training sessions was too brief a period to differentiate between these two conditions. Differences might emerge over a longer time period or outside of the experimental setting. Given that process goal subjects placed greater emphasis on learning to use the strategic steps, they might have been more likely to continue to systematically use the strategy, which would have promoted achievement. Research shows that subjects are more apt to use a strategy when they perceive it as a valuable performance aid (Borkowski & Cavanaugh, 1979; Paris et al., 1983). Additional research is needed on maintenance and generalization of comprehension strategy use.

It is interesting that process goal subjects placed greater emphasis on becoming a better reader than did product goal children. This finding cannot be due to treatment differences because the goal of becoming a better reader was not stated to children in any condition. Perhaps process goal students inferred that by learning to use the steps they could become better readers. This finding is important, because poor readers often have low expectations for performing well in reading (Butkowsky & Willows, 1980). To the extent that students believe they can become better readers, they are apt to engage in behaviors that they believe will help them accomplish that goal (Paris &

Wixson, 1986). Future research might examine students' goals in reading over time.

This research supports the idea that, although self-efficacy is influenced by one's performances, it is not merely a reflection of them (Bandura, 1982; Schunk, in press). Experimental conditions did not differ in the number of comprehension exercises completed during the instructional program, but children who received specific goals subsequently judged self-efficacy higher. This study also shows that self-efficacy bears a positive relationship to comprehension performance. Personal expectations for success are viewed as important influences on achievement by different theoretical approaches (Bandura, 1986; Covington & Omelich, 1979; Weiner, 1985).

The present findings have implications for classroom practice. Small group remedial reading instruction is common in schools. Integrating goals into instructional sessions can be easily accomplished. Advising students to work productively may yield few benefits. The present study shows that short-term, specific, and difficult but attainable goals are more effective in raising achievement outcomes, and that emphasizing a process goal of learning to use a strategy can raise self-efficacy and skills better than a product oriented goal of answering questions.

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Footnote

[1]Copies of the test items and instructional materials can be obtained from the first author.

Table 1

Means (and Standard Deviations) by Experimental Condition

Measure	Phase	Experimental Condition		
		Process Goal	Product Goal	Control
Self-Efficacy	Pretest	67.5 (15.5)	68.6 (8.5)	61.6 (10.7)
	Posttest	82.1 (12.6)	81.8 (13.5)	65.6 (13.9)
Skill	Pretest	7.8 (2.5)	7.8 (1.9)	7.6 (2.9)
	Posttest	12.5 (3.7)	11.5 (3.4)	8.5 (2.2)
Steps	---	88.2 (13.3)	67.1 (15.4)	55.5 (25.4)
Reader	---	89.1 (11.4)	67.3 (25.3)	70.0 (17.9)
Questions	---	79.1 (21.7)	83.6 (21.6)	80.0 (25.3)
Papers	---	80.9 (19.2)	79.1 (25.1)	76.4 (20.6)

Note. $N = 33$; $n = 11$ per condition. Self-efficacy means represent the average judgment per question; range of scale is 10(low) - 100. Skill means represent the number of correct answers on 20 questions. Range of steps, reader, questions, and papers scales is 0(low) - 100.